A PRELIMINARY LIST OF THE HEPATICAE (LIVERWORTS) AND ANTHOCEROTAE (HORNWORTS) FROM THE THREE KINGS ISLANDS, NORTHERN NEW ZEALAND

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Abstract. A preliminary list of 20 taxa (19 hepatics and one anthocerotae) from the Three Kings Islands is provided, based on collections held at the Auckland Institute and Museum and the herbarium, Botany Department, University of Auckland. The species reported are also found in other northern localities in mainland New Zealand. Comparison with other offshore islands and with northern mainland localities suggests that a richer flora should be expected on the Three Kings Islands.

Collections of liverworts have been made from the Three Kings Islands on several occasions, the major collections being those made by M. Holdsworth in 1951 and by A.E. Wright and E.K. Cameron in 1983. In addition, there are a few other specimens at CHR collected by G.W. Ramsay in 1970 and at AK by B.W. Hayward in 1983. The only published reference to hepatics is to a collection of *Riccardia* sp. (Horning et al. 1978:276). The plant concerned is treated as *Aneura* sp. in this list.

A number of specimens are represented in collections as minor inclusions in specimens of other larger and more conspicuous species, e.g. the specimen of *Megaceros flagellaris* (A.E. Wright AK 168775) contains three accessory species *Chiloscyphus* sp., *Kurzia ?hippuroides* and *Teleranea tetradactyla.*

Annotated list of the Hepatics and Anthocerotae

For each species, records are given for individual islands within the Three Kings group, together with the total number of collections examined by me. The specimen number of a selected voucher is cited as well as a summary of the habitat data given by collectors. All records, except that for *Marchantia foliacea*, appear to be the northernmost records for the taxa concerned in the New Zealand Botanical Region but it seems likely that some will be found in the Kermadec Is with further collection there.

Names used in the list are based on the checklists of Hamlin (1972, 1973), and for Anthocerotae the more recent paper by Campbell (1984).

HEPATICAE

Aneura (subg. *Lobatiriccardia*) sp.
Great I; four collections; AK 26078; Tasman Stream, on soil.

Archilejeunea olivacea (Hook.f. & Tayl.) Steph.,
Great I; one collection; AKU 067913; Quadrat I, on *Litsea* bark.

Balantiopsis diplophylla (Hook.f. & Tayl.) Mitt. (syn. *B. hockenii* Berggr.)
Great I; 3 collections; AK 26717, on soil.

Cheilolejeunea (subg. *Euosmolejeunea*) sp.
Great I; one collection; AKU 0674914, Quadrat I, on *Litsea* bark.

Chiloscyphus compactus Col.
Great I; three collections; AK 26713, Castaway Stream; Quadrat II; one collection; AK 22011.

Chiloscyphus sp.
Great I; one collection; AK 168775, Tasman Stream, with *Megaceros* on clay soil.

Cololejeunea pulchella (Mitt.) Schust.
Great I; one collection; AKU 067922; Quadrat I, on bark on *Melicytus ramiflorus*.

Frullania rostellata Mitt.
Great I; five collections; AKU 067910; Quadrat I and Castaway Valley on bark of *Melicytus* sp., *Kunzea ericoides* and *Cordyline*. West I; two collections; AKU 067905, on *Meryta sinclairii* bark. South West I; two collections; AK 168772, on bark of *Meryta sinclairii* and *Cordyline kaspar*.

On the basis of available collections this is the commonest epiphytic liverwort on these islands. This species is common in coastal sites in northern New Zealand.

Frullania solanderiana Col.

North East I; one collection; AKU 067888, on *Kunzea ericoides* bark. West I; two collections; AKU 067903, on rock. South West I; three collections; AK 168785, on rock and bark (*Meryta sinclairii*).

As is common with this species from other locations specimens rarely show fully developed lobules most of the material being only explanate lobules.

Hymenophyton flabellatum (Labill.) Dum. ex Trev.
Great I; four collections; AK 168760, Tasman Stream, on clay soil and humus.

Kurzia sp. [?*K. hippuroides* (Hook. f. & Tayl.) Groelle]
Great I; one collection; AK 168775, Tasman Stream. With *Megaceros* on clay soil.

This is fragmentary material.

Lejeunea flava (Sw.) Nees
Great I; two collections; AKU 067915, Quadrat I, on bark (*Litsea, Melicytus, Leptospermum*). South West I; two collections; AK 168771, on bark (*Meryta sinclairii*). North East I; one collection; AKU 067889 on bark (*Leptospermum*).

Lophocolea bidentata (Linn.) Dum.
North East I; one collection; AKU 067887, on bark (*Leptospermum*). South West I; one collection; AK 168757, on clay.

Lophocolea subporosa Mitt.
South West I; one collection; AKU 067899, on clay.

Marchantia foliacea Mitt.
Great I; two collections; AK 26724, Tasman Stream, on soil.

Metzgeria furcata (Linn.) Dum. (including and equivalent to *M. vittii* Kuwahara)
Great I; six collections; AK 26719, Tasman Stream 90 m alt, on humus or bark. South West I; two collections; AKU 067893.

This species keys to *M. vittii* on the basis of occasional to common geminate hairs on the margin of the thallus.

Microlejeunea culcullata (Reinw. et al.) Steph.
Great I; one collection AKU 067919, Quadrat I, on bark of *Kunzea ericoides*.

Siphonolejeunea nudipes (Hook.f. & Tayl.) Herz.
West I; one collection; AKU 067904, on rock surface.

Teleranea tetradactyla (Hook.f. & Tayl.) Hodgs.
Great I; one collection; AK 168775, Tasman Stream, in with *Megaceros* on clay soil.

The collection is fragmentary material of this small but distinctive species.

ANTHOCEROTAE

Megaceros flagellaris (Mitt.) Steph.
Great I; three collections; AK 168775; Tasman Stream and Castaway Stream, all on clay soil, 90-120 m alt.

Discussion

The specimens in herbaria fall into two groups. Most are large conspicuous species growing on soil (or are small species collected accidentally in samples of such large species). The rest are epiphytes on bark of forest trees (mostly collected at my request by E.K. Cameron in 1983).

Experience with collections from Little Barrier I, The Aldermen Is, the Poor Knights Is and in forest in Northland indicates that a much richer hepatic flora is to be expected on the Three Kings than is indicated by this list. Given the relatively rich and varied vegetation of these islands, the range of epiphytes in particular is, at this stage, very limited. Future exploration will also certainly extend the number of terrestial hepatics.

In some cases the available collections are inadequate for fully accurate determination of the taxa concerned. Also a few species, though distinctive, are represented by only fragmentary samples; thus further collections are needed.

Often the specimens are sterile. With more rigorous collecting, fertile material of many of these could probably be located. This would allow more accurate identification, which would also be improved by the availability of fresh material as some critical identifying features are only satisfactorily present in live plants.

On the basis of the samples available and by comparison with other sites it appears that the Three Kings Islands have an hepatic flora essentially similar to that of forested coastal areas in northern New Zealand. Collections so far are limited in extent as no experienced hepaticologist has visited the islands. More species are to be expected with further collecting. At this stage there is no evidence of island endemics.

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